Appendix I
Charleston Fire (2006) Rehabilitation Summary

In 2006, the Charleston Fire burned most of the Stag Mountain Allotment (see Map 2 in Appendix A). The entire allotment was rested from livestock grazing through 2009.

In the Stone Flat Pasture, a portion of the eastern part of the pasture was drill seeded with big bluegrass, bluebunch wheatgrass, thickspike wheatgrass, Basin wildrye, Idaho fescue, Indian ricegrass, and small burnet. One monitoring site (CHND-01 on Map 2 in Appendix A) was established to measure the success of the drill seeding along with the growth of other plants that survived the fire.

Also within the Stone Flat Pasture, parts of the eastern portion of the pasture and drainages on the western part of the pasture associated with the East Fork of Beaver Creek watershed were aerially seeded with a range or watershed protection seed mix that included big bluegrass, thickspike wheatgrass, Snake River wheatgrass, and Basin wildrye. Monitoring site CHWS-04 (see Map 2 in Appendix A) was established to monitor the success of these rehabilitation treatments.

Within the McIntyre Pasture, the main canyons/drainages of Cabin Creek were aerially seeded along with several of the lower elevation drainages in the southwest part of the pasture.

Four additional monitoring sites, two in the Stone Flat Pasture (North Native and CHSO-01) and two in the McIntyre Pasture (CHSO-02, and CHSO-03) (See Map 2 in Appendix A) were selected to assess when the rehabilitation objectives had been met for burned areas that were not seeded (native release).

Rehabilitation objectives were established for the seeded areas as well as unseeded (native release) areas that burned. The rehabilitation objectives called for a minimum of three mature (3) perennial bunchgrasses per square meter rooted firmly in the soil, and a qualitative assessment of soil and site stability, and hydrologic function, that results in ratings of none to slight departure from that expected from the same kind of ecological site considered to be in stable condition (reference condition). The size of the mature bunchgrasses were to be equivalent to medium sized perennial grasses such as bluebunch wheatgrass, Thurber needlegrass, Indian ricegrass, squirreltail, and Idaho fescue which have also been referred to as tall stature grasses.

From 2007-2009, and again in 2012, density data were collected, along with observations regarding soil/site stability and hydrologic function, to determine if the rehabilitation objectives had been met. In 2014, plant production data at CHND-01 were also collected. Summaries of the data collected are as follows:

Seeded Areas – Plant Density

Drill Seeding – Data collected from 2007-2009 at monitoring site CHND-01 showed that although several of the seeded species initially established, only thickspike wheatgrass persisted

by 2009 and had a density of 18 plants/square meter. There was also regrowth of unseeded plants including Sandberg bluegrass (0.44/square meter), squirreltail grass (0.1/square meter), Thurber needlegrass (0.4/square meter), some perennial forbs, rabbitbrush (0.9/square meter) and Basin big sagebrush (0.2/square meter). The plant densities were deemed adequate to meet the rehabilitation objective. In 2012, the data also showed that bluebunch wheatgrass was present at 5 plants/square meter. Also by 2012, the density of squirreltail grass had increased from 0.1 to 0.6/square meter, and the density of Sandberg bluegrass had increased from 0.44 to 1.0/square meter; however, thickspike wheatgrass had decreased from 18 plants/square meter to 9 plants/square meter. There may be some rebalancing among species as the plant community evolves after the fire along with possibly some affect from drought conditions in 2012. Thickspike wheatgrass, a grass that commonly spreads through underground root-like extensions, is relatively sensitive to changes in precipitation, expanding during wet years and shrinking back/hiding during dry years.

Aerial Range and Watershed Protection Seedings

Data collected from 2007-2009 at monitoring site CHWS-04 showed several of the seeded species established and, by 2009, thickspike wheatgrass had a density of 14 plants/square meter, Snake River wheatgrass had a density of 1.0/square meter, and Basin wildrye had a density of 0.1/square meter. There was also regrowth of native species including Basin wildrye (3.2/square meter), squirreltail grass (0.1/square meter), Nevada bluegrass (1.4/square meter), Sandberg bluegrass (0.16/square meter), Inland saltgrass (1.7/square meter), dryland sedges (6.0/square meter), a variety of perennial forbs, and some rabbitbrush (0.8/square meter). The plant densities were deemed adequate to meet the rehabilitation objective. In 2012, the data showed plant densities were similar to or had increased relative to the densities in 2009.

Unseeded (Native Release) Areas – Plant Density

In October 2009, density data were collected at four (4) unseeded sites to determine if the rehabilitation objectives had been achieved. These monitoring sites were identified as North Native, CHSO-01, CHSO-02, and CHSO-03 (see Map 2 in Appendix A). Summaries of the plant densities are shown in Table 8I1 below, and were judged to have met the rehabilitation objective for perennial grass density.

Table I1: 2006 Charleston Fire Rehabilitation Summary for Unburned (Native Release) Areas- Plant Densities/Square Meter (M^2)

Date: October and December 2009

	Monitoring Sites			
Vegetation	North Native	CHSO-01	CHSO-02	CHSO-03
	Plants/M^2	Plants/M^2	Plants/M^2	Plants/M^2
Medium Sized/Tall Stature Grasses	10.36 (7.38)[1]	30.62 (6.1)[1] (mostly thickspike wheatgrass)	3.42	2.20
Short Stature Grasses	0.9 (0.3)[1]	3.32 (1.1)[1]	9.5 (3.2)[1]	9.2 (3.1)[1]
Total for Grasses	**11.26 (7.68)[1]**	**33.94 (7.2)[1]**	**12.92 (6.62)[1]**	**11.4 (5.3)[1]**
Forbs	6.52	4.58	12.78	12.04
Shrubs	1.76	2.60	2.14	1.56

[1] The numbers in parentheses are grass densities adjusted to be equivalent to medium sized perennial bunchgrasses. For example, a density of 5 thickspike wheatgrass plants (medium height but small basal area), or a density of 3 Sandberg bluegrass (short height and somewhat small basal area) were judged to be equivalent to 1 medium sized bunchgrass.

Soil/Site Stability and Hydrologic Function

Observations regarding soil/site stability and hydrologic function were also made during travels within the allotment in October 2009 generally resulting in ratings of "None to Slight" departure from reference conditions which met the rehabilitation objective. However, the rating form prepared on the North Native site (located in the vicinity of Key Area SM-01) noted the presence of pedestals and/or terracettes judged to be "slight to moderate" departure from reference conditions, with soil surface resistance to erosion rated at "moderate to extreme" departure from reference conditions.

Plant Production in June 2014 at CHND-01 (Charleston Fire Drill Seeding)

Table I2: Stag Mountain Allotment Monitoring Site CHND-01 (Stone Flat Field)		
Plant Species	Total Dry Weight Production (lbs./acre)/Percent Composition of Total	
	6/24/2014	
GRASSES		
Thurber needlegrass	13.1/0.9	
Western wheatgrass	33.4/2.4	
Idaho fescue	29.1/2.1	
Dryland sedge	1.7/0.1	
Squirreltail	0.7/0.1	
Needle & Thread	11.4/0.8	
Total grass	***89.4/6.4***	
FORBS		
Aster	0.5/0.04	
Hoods phlox	34/2.4	
Penstemon	27.8/2.0	
Western yarrow	0.5/0.04	
Dusky maiden	0.3/0.02	
Buckwheat	9.8/0.7	
Lupine	0.2/0.01	
Total forb	***73.1/5.2***	
SHRUBS		
Basin big sagebrush	625/44.5	
Douglas rabbitbrush	615.5/43.9	
Total shrub	***1240.5/88.4***	
Grand Total (lbs/acre)	**1403**	